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ABSTRACT

This report is in compliance with Section 405(k) of the General Education Provisions Act which states that the Director of the National Institute of Education (NIE) provide for a review of the National Assessment of Educational Progress (NAEP) at least once every three years and provide for public comment on its conduct and usefulness. To obtain the congressionally required public comments on the conduct and usefulness of the National Assessment, NIE surveyed chief state school officers, state assessment directors, professional education associations and organizations, and educational researchers. In addition, prior evaluations of NAEP were reviewed and selected papers which address various aspects of NAEP were commissioned. This report reviews the origins of the National Assessment (Chapter 1), describes its present procedures, design, and methodology (Chapter 2), summarizes its major findings (Chapter 3), discusses its uses (Chapter 4), presents reactions to NAEP (Chapter 5), and sets forth NIE's recommendations (Chapter 6). Primary type of information provided by report: Program Description (Legislative Requirement). (Author/PN)

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DIRECTOR'S REPORT TO THE CONGRESS ON THE NATIONAL ASSESSMENT OF EDUCATIONAL PROGRESS

NATIONAL INSTITUTE OF EDUCATION
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December, 1982

TM 830 161

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EXECUTIVE SUMMARY

This report is submitted in compliance with Section 405(k) of the General Education Provisions Act which states that the Director of the National Institute of Education provide for a review of the National Assessment of Educational Progress (NAEP) at least once every three years and provide for public comment on its conduct and usefulness.

The National Assessment is a continuing survey of the knowledge, skills, understanding, and attitudes of young Americans. The age groups assessed are 9-year-olds, 13-year-olds, and 17-year-olds; young adults, aged 26-35, have occasionally been included. Learning areas that are assessed are: art, career and occupational development, citizenship, literature, mathematics, music, reading, science, social studies and writing. Following are highlights of recent NAEP analyses:

> NAEP findings indicate that while students are mastering the basics of a subject, they are declining in their mastery of the more difficult aspects of the same subject. For instance, in mathematics most students are mastering computational skills but not word problems; in writing, most students perform well on tests of grammar but not on items measuring persuasive writing; in reading, students have shown some improvement on literal comprehension items but a decline in inferential comprehension.
>
> These findings suggest that the "back to basics" movement has had a positive effect on student achievement. They suggest also that much still needs to be done to improve student performance on tasks requiring more complex, higher order cognitive skills. The poor performance of secondary school students in both science and social studies reinforces the need for the high schools, in particular, to expand their focus beyond the basic reading and math curriculums.
>
> NAEP findings also indicate that it is the younger students who have consistently shown the most improvement. The performance of 9-year-olds has, almost without exception, improved across all learning areas assessed. The performance of 13-year-olds has remained stable, with slight improvements in some areas, and that of 17-year-olds has, for the most part, declined, even in the basics. The success of the younger students suggests, again, that the focus on basic math and reading skills in the elementary years is paying off. Likewise, the stabilization of 13-year-olds' performance suggests that intervention begun in the early grades and maintained throughout the elementary years also has begun to pay off. On the other hand, the poor performance of the 17-year-olds, even in the basics, suggests that it is much harder to reverse years of poor academic performance than it is to address the problem in the primary grades, before it gets out of hand.
>
> NAEP findings also indicate that student group performance has been, for the most part, consistent across subject areas. The only exception to this are male/female performance differences, which seem to vary according to learning area assessed. Otherwise, inner-city poor, black youth and youth living in the Southeast have made significant gains relative to more advantaged youth in other parts of the country in virtually all subject areas evaluated. The consistent growth demonstrated by blacks, the urban-disadvantaged, and youth from the Southeast suggests that the increased

attention paid to these population groups over the past decade has had a positive impact on student achievement.

To obtain the congressionally required public comments on the conduct and usefulness of the National Assessment, NIE surveyed all chief state school officers and state assessment directors, professional education associations and organizations, and education researchers. Additionally, all prior evaluations were reviewed and selected papers were commissioned. The National Assessment is well regarded and supported by virtually all the groups that were contacted.

Though the overall reaction to NAEP is positive, NIE recommends certain changes to the NAEP legislation, based on its discussions with those contacted, which are designed to enhance the utility of NAEP as a tool for improving our understanding of the condition of education.

INTRODUCTION

The National Assessment of Educational Progress (NAEP) is a continuing survey of the knowledge, skill, understanding, and attitudes of young Americans. Each year for the past 13 years, NAEP has assessed 75,000 to 100,000 persons in one or more learning areas normally taught in the schools—art, career and occupational development, citizenship, literature, mathematics, music, reading, science, social studies, and writing. NAEP has also conducted smaller scale assessments in several other learning areas. Reassessments have been made in all but one of the major areas (career and occupational development). Such reassessments have allowed for reporting of achievement changes over time. The age groups regularly assessed are 9-year-olds, 13-year-olds, and 17-year-olds; young adults, aged 26-35, have occasionally been included.

Section 1242 of the Education Amendments of 1978 (P.L. 95-561) added a new section 405(k) to the General Education Provisions Act (20 U.S.C. 1221e). Part of that Section referred to as the "NAEP law," states that:

> The Director of the [National] Institute [of Education] shall provide for a review of the National Assessment at least once every three years. This review shall provide an opportunity for public comment on the conduct and usefulness of National Assesement and shall result in a report to the Congress and to the Nation on the findings and recommendations, if any, stemming from the review.

This report, prepared 3 years after the first NIE award made under the NAEP law, is submitted in compliance with this subsection. To obtain the congressionally required public comments on the conduct and usefulness of the National Assessment, NIE surveyed chief state school officers, state assessment directors, professional education associations and organizations, and educational researchers. In addition, prior evaluations of NAEP were reviewed and selected papers which address various aspects of NAEP were commissioned.

This report reviews the origins of the National Assessment (Chapter I), describes its present procedures, design, and methodology (Chapter II), summarizes its major findings (Chapter III), discusses its uses (Chapter IV), presents reactions to NAEP (Chapter V), and sets forth NIE's recommendations (Chapter VI).

I. ORIGINS OF NAEP

WHY A NATIONAL ASSESSMENT?

The National Assessment was established to develop reliable and consistent information about our nation's educational progress.

In the early 1960's, when the idea of a national assessment was proposed, schools were using a variety of evaluative and assessment tools. Evaluation of student, classroom, school, and even school district success in meeting educational goals was commonplace. What was not present, however, was a measure of how the nation's educational system as a whole was doing its job. Many questions could not be answered definitively, such as: Are students learning more today than they did in the past? Is greater progress being made in some subject areas than in others? What problems exist nationally?

In our federal form of government, responsibility for education is shared by the states and the Federal Government. The basic responsibility for education is the province of the states which have delegated much of their operating authority to local school boards. The American educational system is not subject to unilateral control and direction, but if one perceives public education as a "system" of interconnecting and politically distinct parts, the question can still be asked: How is it doing? The National Assessment was designed to provide an answer.[1]

In 1963, Francis Keppel, then Commissioner of Education, contacted John Gardner, then president of the Carnegie Corporation, to "discuss the means of ascertaining the educational level attained through American education."[2]

Ralph Tyler, asked by Carnegie to provide direction in planning NAEP, suggested the following general characteristics of a national assessment of educational progress:

(a) the Assessment would test general levels of knowledge . . .;

(b) the tests would not be aimed at discriminating among individuals, unlike most educational tests;

(c) there would be an attempt to assess more accurately the levels of learning of the least educated, average, and most educated groups in the society;

(d) some sort of matrix sampling system would test individuals only on a small number of questions but results could be aggregated to reflect the knowledge of particular subgroups in the population;

(e) adults might be included in the sample;

(f) stages, such as the end of elementary school, the end of intermediate school, and the end of high school should be used in connection with specific testing ages

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[1]A description of earlier considerations of a national assessment design is detailed by a key figure in the planning and creation of NAEP: Tyler, Ralph, "The Objectives and Plans for a National Assessment of Educational Programs," Journal of Educational Measurement Vol. 3, No. 1 (Spring, 1966), pp. 1-4.

[2]Greenbaum, William, Garet, M. and Solomon, E. Measuring Educational Progress (New York: McGraw Hill Book Company, 1976), p. 8. Much of the following discussion reflects events described by Greenbaum and by Wayne Martin in "National Assessment of Educational Progress," New Directions for Testing and Measurement, (November 2, 1979), pp. 45-50.

rather than at specific grade levels;

(g) the effects of the tests themselves would have to be carefully considered because they might become for students educational curricula and might also reflect on the status of particular communities.[3]

These characteristics were made part of the NAEP structure and remain so today. NAEP focuses on general levels of knowledge in 10 learning areas, measures the performance of groups, not individuals, uses matrix sampling, and assesses youth at ages 9, 13, and 17 as well as young adults between the ages of 26 and 35. Results are not analyzed explicitly by categories of "least educated," "average," and "most educated" as Tyler suggested, but NAEP does provide information about variety of socioeconomic and geographical characteristics of populations.

Accommodations to Conflicting Needs

The formulation of NAEP goals reflected a careful balancing of conflicting political, educational, and research interests. There were concerns that establishment of a national assessment would lead to greater federal control of education, in part through the creation of national performance standards or curriculums. In response, NAEP was designed as a voluntary, cooperative program. In 1969 its administration was entrusted to the Education Commission of the States (ECS), an interstate compact of states and territories in the United States. To ensure further the non-federal nature of NAEP, Congress mandated in 1978 (20 U.S.C. 1221e) the establishment of a NAEP Assessment Policy Committee (APC) with membership drawn from state and local education agencies and their boards, state legislatures, professional education associations, and the business community. The APC "runs" NAEP.

The concern that NAEP would lead to national curriculums or performance standards could never have been fully alleviated through the creation of the APC alone. Thus, several additional design steps were taken to minimize this concern.

One step was to make NAEP broad in scope, covering not only reading, writing, and arithmetic, but also art, music, science, career and occupational development, and citizenship, among others. With such a range of subject areas dealing with "objectives," concerns about narrowing the curriculum to fit NAEP subjects or having NAEP results "drive" curriculum changes were minimized.

Nonetheless, within a learning area excessive focus on specific sub-areas are still possible. In mathematics, for example, calculation might be stressed over problem solving; in reading, word recognition could be emphasized at the expense of comprehension.

Two steps were taken to avoid this potential problem. First, the original assessment items were selected through the intensive involvement of educators in order to ensure that choice of items was representative of actual practice. Assessment items are updated on a continuing basis through similar consultation with the field and further consensus-building.

Second, NAEP was (and is) based on matrix sampling, in which any one person is assessed on only a subset of items covering an entire area of learning. The interpretation from such a sampling method proceeds from the aggregate of partial responses through various statistical weighting

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[3]Ibid., p. 10.

processes. As a result, no student or group of students in a school takes a complete NAEP test, and individual school or district performance, therefore, cannot be compared with any national performance standard. Similarly, assessment items themselves were developed to preclude norm-referenced judgements, such as "half the country is performing at 'grade level' in a learning area and half is not."

These steps freed educators in states and localities not only from comparison with an invidious national standard, but from unwanted comparisons with each other as well. Most did not want interjurisdictional comparisons because of differences in populations and curriculums, and the mismatch of curriculums with assessment items.

The framers of NAEP, beyond responding to local and state concerns with the design and construction of assessment terms, decided that NAEP would collect relatively little information about school programs, or other characteristics that might "explain" differences in results, other than basic socioeconomic and educational data. As a result, NAEP was justly viewed as essentially a census of educational progress, not as a tool to explain problems, to support particular solutions, or to predict future trends.

Implications for Utilization

The design of NAEP as a census, or status report, limits its utilization. At the most general level, the steps taken to minimize the threat of federal control, national standards, and unwanted comparisons have resulted in a data base that does not permit use in any one site of the country. Rather, educators and others need to use NAEP data opportunistically according to their particular circumstances.

Examples of uses of NAEP data by local and state educators include their focusing on broad areas such as higher order comprehension skills after NAEP showed them to be a national problem, and informing state legislators about national trends as an aid in setting relevant state and local educational policies. In fact, NAEP was designed to focus on broad issues, with the Federal government, the lay public, and educators as its primary audiences.

The diverse effects of the early NAEP design decisions reduced the ability to use NAEP in other ways. The intent of these decisions was to discourage actions that might flow from grade-level explicit comparisons with other states' or districts' progress, and those that encouraged explanations of specific causal factors.

The NAEP data base is today what it was intended to be, a broad national census of educational progress that can show trends over time in specific subject areas.

BUDGET AND ADMINISTRATIVE HISTORY

About $70 million in public and private funds has been invested in NAEP since 1964. Funding during the planning years (1964-68) came from the Carnegie Corporation, the Fund for the Advancement of Education, and the Ford Foundation. The U.S. Office of Education, Carnegie, and Ford supported the project between 1968 and 1970; the Office of Education became the sole funding source in 1971. The National Center for Education Statistics (NCES) funded the project from 1974 until March 1979, when the Congress mandated transfer of the project to the National Institute of Education. Sources and amounts of annual resources for the project since 1964 are as follows:

TABLE 1: SOURCE AND AMOUNT OF NAEP FUNDING BY YEAR[1]

FY	Carnegie Corporation	Fund for the Advancement of Education	Ford Foundation	New Federal Funds	Other[2]	Total
1964	112,500					112,500
1965	260,000					260,000
1966	70,400	496,000				566,400
1967	640,000	640,000				1,280,000
1968	1,000,000			372,358		1,372,358
1969	350,000		560,000	1,000,000		1,910,000
1970	350,000			2,400,000		2,750,000
1971				4,500,000		4,500,000
1972				6,000,000		6,000,000
1973				6,000,000		6,000,000
1974				5,500,000		5,500,000
1975				4,630,530		4,630,530
1976				4,900,000		4,900,000
Transition Quarter				1,500,000		1,500,000
1977				4,600,000		4,600,000
1978				4,800,000	62,416	4,862,416
1979				3,969,348	917,667	4,887,015
1980				3,880,000	459,197	4,339,197
1981				3,880,000	1,154,050	5,034,050
1982 (As of 3/15/82)				3,880,000	704,162	4,584,162
TOTALS	2,782,900	1,136,000	560,000	61,812,236	3,297,492	69,588,628[3]

[1]The U.S. Office of Education funded this project 1968-1973 with $20,272,358. The National Center for Education Statistics funded this project 1974 through part of 1979 for $28,408,484. NIE funded this project since March 1979 for a total of $13,131,394 in direct NAEP funding and about $1,067,417 in NAEP-like related activities. These figures total $62,879,653 and when 1983's $2,500,000 is added, the total direct "ED" costs will have been some $65,379,653. This does not include other direct or indirect awards made to ECS for NAEP-like activities from agencies such as the National Science Foudation and the Department of Defense.

[2]"Other" includes "miscellaneous income," revenues from publication sales, carryover from prior years, funding from other agencies through awards to ECS for NAEP, etc. These include, for example, $25,358 in 1979 from the Food and Drug Administration (label-reading assessment), and $434,923 from the U.S. Department of Labor (NOICC) for 17-year-old out-of-school assessment of career/work knowledge in 1981.

[3]Totals are inflated by the amounts of "carryover" from prior fiscal years. Note, however, that the amount for each fiscal year does represent the resources available for that fiscal year.

Since becoming operational in 1969, NAEP has been administered by only one organization—the nonprofit Education Commission of the States located in Denver, Colorado. ECS has had two major subcontractors: Research Triangle Institute located in Research Triangle Park, North Carolina (sampling and field data collection) and Westinghouse Information Services (previously known as Westinghouse DataScore Systems and as Measurement Research Corporation) in Iowa City, Iowa.

NAEP has been administered under two procurement instruments—contracts and grants—and under three official sponsors: the U.S. Office of Education, the National Center for Education Statistics, and the National Institute of Education.

II. THE PRESENT NAEP: GOVERNANCE AND DESIGN

GOVERNANCE

NAEP is governed by an Assessment Policy Committee, whose members are selected by ECS, the current NIE grantee. The APC is solely responsible for determining NAEP policy and technical direction. The APC's role is emphasized by the following excerpts from the law (Section 405(k), General Education Provision Act):

> (2)(A) The education organization through which the Institute carries out the National Assessment shall be responsible for overall management of the National Assessment. Such organization shall delegate authority to design and supervise the conduct of the National Assessment to an Assessment Policy Committee established by such organization. The Assessment Policy Committee shall be composed of—(i) five members appointed by the education organization of whom two members shall be representatives of business and industry and three members shall be representatives of the general public, and (ii) twelve members appointed by the education organization from the categories of membership specified in subparagraph (B).
>
> (B) Members of the Assessment Policy Committee appointed in accordance with division (ii) of subparagraph (A) shall be—
>
> (i) one chief State school officer;
> (ii) two State legislators;
> (iii) two school district superintendents;
> (iv) one chairman of a State board of education;
> (v) one chairman of a local school board;
> (vi) one Governor of a State; and
> (vii) four classroom teachers . . .
>
> (3) The Assessment Policy Committee established by paragraph (2) shall be responsible for the design of the National Assessment, including the selection of the learning areas to be assessed, the development and selection of goal statements and assessment items, the assessment methodology, the form and content of the reporting and dissemination of assessment results, and studies to evaluate and improve the form and utilization of the National Assessment . . .

DESIGN

The information obtained by NAEP covers a wide range of abilities including elementary skills as well as higher order cognitive skills and attitudes. The nine basic features of NAEP are as follows:

1. Ten subject areas. Reading, writing, mathematics, science, citizenship, social studies, art, music, literature, and career and occupational development. Nearly all areas have been assessed every 3 to 5 years. Between 1969 and 1975, NAEP conducted assessments in two subject areas every year. Between 1975 and 1979, NAEP conducted a regular assessment in one subject area and a smaller-scale assessment in an area such as basic mathematics,

consumer skills, or basic life skills. Owing to decreasing annual budgets, NAEP began collecting data every other year since 1980. The following timetable summarizes areas of assessment over the history of NAEP.

TABLE 2: ASSESSMENT TIMETABLE

Assessment Year	School Year	Learning Area	Probes**
01	1969-70	Science, Citizenship, Writing	
02	1970-71	Reading, Literature	
03	1971-72	Music, Social Studies	
04	1972-73	Science, Mathematics	
05	1973-74	Writing, Career and Occupational Development	
06	1974-75	Reading, Art	Basic Skills
07	1975-76	Citizenship, Social Studies	Basic Mathematics
08	1976-77	Science	Basic Life Skills
09	1977-78	Mathematics	Consumer Skills
10	1978-79	Writing, Art, Music	
11	1979-80	Reading, Literature	
13	1981-82	Mathematics, Citizenship/Social Studies*	
15	1983-84	Writing, Citizenship/Social Studies*	

NOTE: No collection of assessment data was scheduled for school years 1980-81 and 1982-83.
*Assessment of citizenship/social studies would occur over a three-year period. National level data only.
**Small special-interest assessments conducted on limited samples.

2. Three age groups. 9-, 13-, and 17-year-olds. These ages correspond to key educational stages for most students: elementary school (grade 4), junior high school (grade 8), and senior high school (grade 11). To represent 17-year-olds accurately, NAEP also included a sample of 17-year-olds not enrolled in school for the years 1969-76 and 1979-80. Young adults (ages 26-35) participated in the early years of data collection, but funding shortages precluded such collections after the 1976-77 school year.
3. Multistage probability sampling. Each assessment involves 20,000 to 30,000 students for each age group, or a total of 75,000 to 100,000 students, from approximately 1,700 public and private elementary and secondary schools. In total, over one million individuals have been assessed since 1969.
4. What students know and can do. An objective-referenced approach has become the hallmark of the project. NAEP develops both general and age-specific objectives for each learning area assessed, and then, with extensive involvement of scholars, teachers, subject matter and curriculum specialists, and lay people, develops exercises (questions or items) designed to measure what youngsters know in these subject areas.

5. Use of exercises for more than one assessment to permit comparisons across age groups. Twenty-five to 50 percent of the exercises used in each subject area are reused in later assessments, with the remaining 75 to 50 percent being released for public use. In addition, NAEP collects information on student background variables and from principals.

6. Matrix sampling to minimize burdens placed on schools and respondents. Each NAEP assessment requires between 5 and 10 hours of administration time if all exercises were completed by one person. These exercises are divided into anywhere from 20 to 40 booklets so that a student spends only one class session, about 45 minutes per "booklet." Out-of-school 17-year-olds (when they are assessed) are paid a nominal amount ($5 to $7) for each booklet completed and are asked to complete several booklets. Exercise booklets and other data collection instruments are administered by Research Triangle Institute staff trained to minimize time burdens on school staff.

7. Combination of multiple choice and open-ended exercises. Open-ended exercises are used principally in art, music, and writing, where participants' performance may involve singing, drawing, or writing essays. These responses are hand scored by trained specialists in the subject field.

8. Data analyzed by estimating the proportion of acceptable responses, by age level, to each exercise. Statistics are obtained for individual exercises and for subsets of exercises having common objectives and themes. Results are reported by geographical region (Northeast, Southeast, Central, West), by sex, by race/ethnicity (Black, White, Hispanic, Other), by level of parental education (no high school, graduated from high school, post high school), and by size and type of community (extreme rural, low metro, high metro, main big city, urban fringe, medium city, small places). Also reported are comparisons among each of these reporting groups and the age group as a whole, comparisons across age groups, and changes in performances over two or more assessment cycles. The relationship between demographic characteristics and achievement is also often reported.

9. NAEP differs from testing programs in many respects.
   - While standardized achievement tests are norm referenced, NAEP is objective referenced.
   - For a standardized achievement test, each respondent takes every exercise, receives a score for his or her performance, and is ranked on the basis of that score with respect to a reference group. For NAEP, no respondent takes all the exercises used to assess a learning area, no respondent receives a score, and emphasis is placed on the performance of groups of respondents on specific exercises.
   - While standardized achievement tests usually are administered to an entire grade level or school at one time, NAEP exercises are administered to small groups of about 16-20. NAEP exercises also contain individually administered sections.
   - Standardized achievement test items are usually limited to a multiple-choice format. NAEP employs a variety of exercise formats.
   - Standardized tests usually focus on knowledge questions. NAEP includes exercises relating to attitude questions as well.
   - When taking most standardized tests, the respondent is required to read the items. NAEP exercises are also verbally spoken to respondents by a paced tape or by the exercise administrator in an interview situation, except for the reading assessment.
   - The items on a standardized achievement test are rarely, if ever, made public. NAEP releases half or more of the exercises used in an assessment.

III. NAEP FINDINGS AND IMPLICATIONS

FINDINGS*

Reading Achievement, 1970-80

ECS administered reading tests in 1970-71, 1974-75, and 1979-80, and analyzed achievement in areas of literal comprehension (the ability to locate or remember the exact meaning of a word, sentence, or paragraph), inferential comprehension (gleaning from a passage some idea that is not stated explicitly), and reference skills (using special skills such as locating a resource and organizing and interpreting resource information). The results of the three assessments indicate that 9-year-olds made significant improvements throughout the 1970's in all three learning areas measured, while the overall performance of 13-year-olds and 17-year-olds did not improve significantly. Thirteen-year-olds did, however, show significant improvement in literal comprehension, while 17-year-olds evidenced a significant decline in inferential comprehension.

Highlights of NAEP reading achievement findings, as reported in Three National Assessments of Reading: Changes in Performance, 1970-80, are as follows:

- Nationally, the 9-year-olds' overall reading performance level rose 3.9%. They made significant gains in reference skills (4.8%), literal comprehension (3.9%) and inferential comprehension (3.5%).
- The largest gains among 9-year-olds occurred for black students (9.9%), students who reside in the Southeast (7.5%), those who attend schools in rural communities (6.0%) . . . those who attend schools in disadvantaged-urban communities (5.2%) . . . and Hispanic students who improved twice as much as other ethnic groups between 1975 and 1980.
- Nationally, 13-year-olds registered a significant increase in performance in literal comprehension from the first to the third assessment.
- The only significant overall gain among the 13-year-old reporting groups occurred for black students (4.2%).
- Nationally, the performance level of 17-year-olds declined significantly (2.1%) in inferential comprehension.
- Three groups at each age—students in the Southeast, blacks and males—narrowed the gap between their earlier performance and the national average, although they continue to perform below the national level.[4]

*The basic statistic used in the NAEP analysis is the percentage of correct answers for a given item, or the mean percentage for a grouping of items. When looking from one subject area assessment to its next assessment we talk about the percentage difference between correct answers and not the actual number of items answered correctly.

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[4]Education Commission of the States, Three National Assessments of Reading: Changes in Performance, 1970-80. (Washington D.C.: United States Government Printing Office, 1981), p. xiii.

ESC recently (1979-80) implemented a new form of analysis that partitions the national sample of respondents into four achievement classes, or four levels of performance. Analyses by achievement class indicate that, over the past decade, the greatest gains across all three age groups were made by the lowest one-fourth of the national sample, while the highest one-fourth showed the least improvement. This trend was most evident for the 17-year-old groups, in which mean performance significantly declined for the highest achievement class. Given this consideration, ECS comments: "Thus, at age 17, the slight downward trend in overall performance may have resulted primarily from the decline of those students in the higher achievement class."[5]

Analyses of the distribution of groups within the lowest and highest achievement classes revealed that certain groups at all three age levels tended to be overrepresented in the lowest group. "These are blacks, Southeasterners, those in the not-graduated-high school groups, and those in the disadvantaged-urban group."[6] In the highest achieving group the distribution of blacks at ages 9 and 13 increased in the 1979-80 assessment while the proportion of 17-year-old blacks decreased. The proportion of Southeasterners in the highest achieving group increased for all age groups from the first to the third assessment.

Additionally, analyses of reading achievement data indicate that students attending Title I eligible schools improved their reading performance over the past decade at a faster rate than did students in schools not eligible for Title I assistance. The most dramatic change was in the Southeast, with students across age groups narrowing the gap between eligible and non-eligible schools for Title I an average of 4.7 percentage points.

However the Title I data should be interpreted with caution. In gathering these data, the question asked of participating schools was: "Is your school entitled to receive Title I funds?" There is no evidence that those schools that responded "yes" did, in fact, receive Title I funds. Also, the data do not indicate whether those students assessed in the eligible schools actually received Title I benefits.

Approximately half the items in the 1979-80 reading/literature assessment were designed to measure reading and literature within the larger context of literacy, i.e., thinking, responding, and writing. NAEP findings, reported in Reading, Thinking and Writing, indicated both strengths and weaknesses in student performance: although "almost all students recognize the value and utility of reading, most teenagers read little for their own enjoyment . . ."[7] NAEP findings also indicated that although older students had better comprehension skills and could better write about what they read than could younger students, they were less committed to reading than younger students. The older students were also able to express their "initial ideas and judgments about what they read . . . but very few students at any age explained their initial ideas and judgments . . ."[8] Older students presented evidence to support their assertions more often than younger students, but this evidence tended to be superficial and limited. Most students of all ages also lacked effective strategies to analyze and evaluate what they had read.

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[5]Ibid., p. 34.

[6]Ibid., p. 42.

[7]Education Commission of the States, Reading, Thinking and Writing: Results from 1979-80 National Assessment of Reading and Literature (Denver, CO: Education Commission of the States, 1981), p. 1.

[8]Ibid.

Mathematics Achievement, 1972-78

ECS conducted mathematics assessments in 1972-73 and 1977-78. Combined assessment results indicate that during the 1973-78 period, "9-year-olds performance declined very slightly; the decline for 13-year-olds was slightly larger and the decline for 17-year-olds was appreciable."[9]

Student group ". . . performance between 1973 and 1978 closely paralleled changes seen for the entire nation."[10] Some exceptions were found, however, particularly at age 9.

> Nine-year-old blacks, although still below national levels showed an improvement, while their white counterparts suffered a decline. Nine-year-olds living in disadvantaged-urban areas also tended to improve while the national percentage declined slightly, meaning that those in the disadvantaged-urban group at age 9 improved relative to the Nation . . . At age 13, blacks did not show a decline and whites did, although performance of blacks in each assessment remained below that of their white classmates. Achievement of disadvantaged-urban students at this age did not change significantly and tended to improve, although the Nation as a whole declined. For 17-year-olds, those living in the Western region tended to decline slightly more than the Nation.[11]

Female and male achievement declined identically between the first and second assessments for ages 9 and 13. At age 17, males outperformed females in each mathematics assessment. NAEP findings suggest that 13-year-old females and males start high school with similar mathematical abilities, but by 12th grade, males outscore females by 6 to 12 percentage points on tasks involving problem-solving skills.

ECS analyzes mathematics achievement in four cognitive areas: knowledge—the ability to recall and recognize facts and definitions; skills—the ability to manipulate mathematical symbols and use algorithms (e.g. add a column of numbers or read information from a table); understanding—the ability to grasp the principles underlying knowledge and skills; and applications—the ability to use mathematical knowledge, skills, and understanding to solve problems.

Results across all four cognitive areas indicate that, for each age group, as the complexity of the cognitive area measured increases, student performance tends to decline, with the greatest decreases noted for the 17-year-olds. All three age groups showed significant average declines on the more complex items between the 1973 and 1978 assessments. One should interpret these particular results with caution. The number of "change" items—items used within each cognitive area in both the first and second assessments—were so few that the results should be considered only as one indication of trends in student achievement, rather than as definitive findings.

Writing Achievement, 1969-79

ECS conducted writing assessments in 1969-70, 1973-74, and in 1978-79. No significant change in student writing performance took place between the first and third assessments. Excep-

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[9]Education Commission of the States, Changes in Mathematical Achievement: 1973-78. (Washington, D.C.: United States Government Printing Office, 1978), p. 1.

[10]Ibid., p. 17.

[11]Ibid., pp. 17 and 21.

tions to this trend and highlights of other findings of the third assessment are as follows:

- Black teenagers improved on almost all of the writing tasks administered to 13- and 17-year-olds, narrowing the gap between their performance and that of the nation on some items, and performing at the national level on others.
- Although still performing below the nation, 17-year-olds from economically disadvantaged urban areas improved with each writing assessment.
- Neither 13- nor 17-year-olds reported that they received a great deal of direct instruction in writing or were required to do much writing in school.
- Teenagers writing the better essays generally reported having written more papers and having more class time devoted to writing instruction.
- While significantly more 17-year-olds reported having taken remedial writing courses in 1979 than in 1974 (8% versus 6%), assessment results suggested that more students needed such intensive instruction.
- Enjoyment of writing appeared to decline with age, with about two-thirds of the 9-year-olds indicating that they enjoyed writing compared to 59% of the 13-year-olds and 53% of the 17-year-olds. Approximately a quarter of the students at all three ages felt they could not write well.[12]

ECS writing assessments measure a variety of writing skills, i.e., descriptive, narrative, persuasive, and others. ECS uses several types of analysis and scoring systems to evaluate student writing performance. Holistic scoring rates the quality of student writing samples in relation to all writing samples. Primary trait scoring (PTS) isolates writing skills and then rates each sample against criteria designed to measure that skill. Holistic scoring rank orders the samples; PTS scoring describes them. Cohesive analysis evaluates the degree to which "words and ideas are linked together . . . to create a sense of wholeness . . . "[13] and syntactic and mechanical analysis examines basic grammatical and spelling skills.

Holistic evaluations of 9-year-olds' narrative writing skills and 17-year-olds' descriptive writing skills indicate no change in student performance throughout the 1970's. There were indications, however, that the overall quality of the younger students' work improved with each assessment, and that the quality of the older students' writing, on average, declined. Holistic ratings for 13-year-olds' descriptive writing skills indicated significant declines between the first and third assessments, although much of that decline took place between the first and second assessments.

Results based on primary trait scoring indicate similar trends. "At ages 17 and 13, expressive writing skills are improving or remaining the same, while persuasive and descriptive skills appear to be declining."[14] Nine-year-olds' performance in expressive writing tasks fluctuated throughout the 1970's, while performance on persuasive writing exercises remained stable. Cohesive and syntactic analysis of writing exercises for all three age groups indicated little change in student performance.

Although ECS findings indicate that students' overall writing performance remained

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[12]Education Commission of the States, "Good News, Bad News Mix in Third NAEP Writing Survey," NAEP Bulletin. (Washington, D.C.: United States Government Printing Office, 1981), pp. 1-2.

[13]Education Commission of the States, Writing Achievement, 1969-79: Results from the Third Writing Assessment. (Washington, D.C.: United States Government Printing Office, 1980), p. 7.

[14]Ibid., p. 51.

stable over the past decade, with considerable improvement noted for black youngsters and inner-city youth, they also indicate some areas that should be of concern. For example, a sizeable minority of students "10 to 25, and sometimes 30% of the youngsters at each age have serious problems with writing . . ."[15] across all writing skills measured. The declines in persuasive writing skills for 13-year-olds and 17-year-olds are also cause for concern. Analyses indicate that although students have mastered basic writing skills, they are not given opportunities to use higher order cognitive skills in their writing. The findings indicate that instruction should focus on more complex writing skills, i.e., writing processes which generate extended coherent ideas.

Science Achievement, 1969-77

NAEP has assessed student achievement in science on three occasions: 1969-70, 1972-73, and 1976-77. To permit the identification of changes in student achievement over time, the second and third science assessments included many of the same items used in the first assessment. Highlights of findings as reported in Three National Assessments of Science: Change in Achievement, 1969-77 are as follows:

- The downward trend in science achievement observed from the first to the second assessment appears to be lessening for the 9- and 13-year-olds in the third assessment. For these two age groups, it appears that a continued decline in achievement in physical science is accompanied by some stability in achievement in biology.
- The achievement level of 17-year-olds continued to decline. Seventeen-year-olds declined in performance from the first to the second assessment and from the second to the third assessment.
- Students in extreme-rural communities, at each age level, have improved in science achievement during the eight years spanned by the three assessments of science.
- A gap continues to exist in the achievement levels of whites and blacks: the achievement level of whites was higher than that of blacks in each assessment. However, black 13-year-olds improved in achievement in physical science from the second to the third assessment.
- The achievement level of males at each age was higher than that of females in all three science assessments.[16]

Some important and significant exceptions to the trends cited above, also reported in the same ECS report, include the following:

- Though male achievement was generally above that of the nation as a whole, black males, males whose parents did not graduate from high school, and males who live in the Southeast all performed below the national average.
- Overall performance was near or above their contemporaries nationwide for 9-year-old and 13-year-old blacks living in advantaged-urban areas.

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[15]Ibid., p. 52.

[16]Education Commission of the States, Three National Assessments of Science: Changes in Achievement 1969-1977. (Washington, D.C.: United States Government Printing Office, 1978), p. xiii.

- The overall performance of white females, females whose parents have a post high school education, and females living in Northern and Central states exceeded that of the nation.

In 1976-77, in addition to assessing general science achievement, ECS dealt with three other science objectives: science and society, personal experience with science, and awareness of the philosophy and methodology of science. Results indicated some discrepancies between what students say and what they actually do. For example: "While 90% of the two teenage groups say they are willing to use less electricity, and thus help in the problems of energy conservation, only 57% of the 13-year-olds and 68% of the 17-year-olds say they often (or always) turn out lights that aren't needed."[17]

Assessment results indicate that, in general, 9-year-olds' attitudes toward science were more favorable than those of the 13-year-olds and 17-year-olds. Approximately half of the 13-year-olds and half of the 17-year-olds expressed positive attitudes toward their science classes and the prospect of being a scientist, while approximately 70 percent of the 9-year-olds expressed positive feelings about science classes and about 60 percent said that they would like to be scientists.

Some attitude results of the survey deviate from the overall science achievement patterns cited earlier. For example, although 17-year-old black youth from disadvantaged-urban areas and those from the Southeast generally performed below the nation, they expressed more favorable attitudes toward science courses and science-related careers. One plausible explanation for this is that science may not be a part of a black inner-city youth's reality, as much as it is part of the lives of more advantaged youth. "Responses to science attitudinal questions may reflect not their informed attitudes but opinion they feel they should have."[18]

Citizenship and Social Studies Achievement, 1969-76

The citizenship and social studies surveys initially were administered as two separate assessments. The citizenship survey was first conducted during the 1969-70 school year; the social studies survey was first conducted in 1971-72. In 1975-76, citizenship and social studies were evaluated in a single social studies assessment.

The 1975-76 assessment categorized items into three major areas; knowledge, skills, and attitudes. Knowledge items evaluated student performance in economics, geography, history, and politics; skill items evaluated students' ability to obtain and to interpret information; attitude items evaluated students' views. Many of the items used in the two earlier assessments were incorporated into these categories in order to evaluate change in student performance.

Overall findings based on the "change" items indicate no significant difference in the performance of 9-year-olds, a slight decline in that of 13-year-olds, a drop of approximately 3 percentage points in the performance of 17-year-olds. The performance of some student groups differed from this general pattern:

- While performance of blacks remained below that of whites, at age 9 blacks displayed

[17]Education Commission of the States, "Science: Contradictions Found in Attitudes of U.S. Teenagers, Adults," NAEP Newsletter Vol. XII, No. 6 (1979), p. 1.

[18]Ibid., p. 2.

a greater improvement than whites; at age 13 black performance remained the same, while white performance declined. However, for 17-year-olds black and white declines were very similar.

- Seventeen-year-old Hispanic students and students living in the West displayed smaller declines than the nation as a whole. Seventeen-year-olds living in affluent-urban communities declined slightly more than did the entire nation.[19]

NAEP social studies results can also be analyzed by comparing the 13-year-olds' and the 17-year-olds' performance on identical items that appeared in both the 1972 and 1976 assessments. "In (almost) all cases achievement levels of 17-year-olds were above those of 13-year-olds, and the differences between them were fairly constant across content areas and assessment years."[20] The exception to this pattern is that in 1976 the difference between the 13-year-olds' and the 17-year-olds' overall performance on knowledge and attitude items closed; this change was due to a decrease in the 17-year-olds' achievement rather than to an increase in 13-year-olds' achievement.

The social studies performance of 13- and 17-year-olds across student groups and across assessment years indicates that selected segments of today's youth are severely lacking in the knowledge and skill areas assessed, to the point that ". . . by age 17, near the end of senior high school, some groups of students are achieving at or below the level attained by other groups during junior high."[21] The overall performance of black 17-year-olds on knowledge and skill items was below that of white 13-year-olds in each assessment, and in 1976, black 17-year-olds performed below all 13-year-olds, while 17-year-old youth living in disadvantaged-urban areas performed below 13-year-old youth living in advantaged-urban communities. Additionally, youths living in more affluent communities, and particularly the 17-year-olds, showed larger declines in performance between the earlier assessments and the 1975-76 assessement than youth living in less affluent areas.

The initial citizenship and social studies assessments and the 1975-76 citizenship and social studies assessment showed changes in student performance on a number of political knowledge and attitude items. Results of the 1975-76 assessment indicate that, overall, teenagers during the early 1970's declined in their knowledge of the structure and functions of government, and in their understanding of and willingness to participate in the political process, but "gained in showing respect for other races, in understanding the need for law in a democratic society and in describing ways to avoid future wars."[22]

Music and Art Achievement, 1971-1979

Music achievement was first surveyed during the 1971-72 school year, and art achievement during the 1974-75 school year. In 1978-79, NAEP combined these learning areas into one assessment.

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[19]Education Commission of the States, Changes in Social Studies Performance, 1972-76. (Washington, D.C.: United States Government Printing Office, 1978), p. 1.

[20]Ibid., p. 39.

[21]Ibid., p. 42.

[22]Education Commission of the States "Declines, Gains in Political Knowledge," NAEP Newsletter Vol. XI, No. 2 (1978), p. 1.

The results of the 1978-79 survey indicate mixed trends in student achievement. On the positive side, 75% of the students at each age group expressed positive attitudes toward music. Regarding art, more 9- and 13-year-olds had visited art museums than did their counterparts in the early 1970's; the artistic achievements and attitudes of 9-year-olds remained constant throughout the mid and late 1970's.

On the negative side, 9- and 17-year-olds' knowledge of music, and particularly their knowledge of the elements of music and their symbolic representation, declined from the early 1970's. Teenagers were less inclined to view art as important and were less likely to pursue artistic activities outside of school in 1979 than in 1975.

A review of the latest NAEP results in terms of student groups reveals that, in both art and music, students in economically advantaged-urban areas, and students having at least one parent with some education beyond high school performed above national levels. Students living in the Southeast and in disadvantaged-urban areas, and students whose parents had not graduated from high school, performed below the national levels. Girls out performed males at all ages in music. In art, 9-year-old boys out performed girls of the same age, but by the end of high school, the female students' performance exceeded that of their male counterparts.

IMPLICATIONS

NAEP findings indicate that while students are mastering the basics of a subject, they are declining in their mastery of the more difficult aspects of the same subject. For instance, in mathematics most students are mastering computational skills but not word problems; in writing, most students perform well on tests of grammar but not on items measuring persuasive writing; in reading, students have shown some improvement on literal comprehension items but a decline in inferential comprehension.

These findings suggest that the "back to basics" movement has had a positive effect on student achievement. They suggest also that much still needs to be done to improve student performance on tasks requiring more complex, higher order cognitive skills. The poor performance of secondary school students in both science and social studies reinforces the need for the high schools, in particular, to expand their focus beyond the basic reading and math curriculum.

NAEP findings also indicate that it is the younger students who have consistently shown the most improvement. The performance of 9-year-olds has, almost without exception, improved across all learning areas assessed. The performance of 13-year-olds has remained stable, with slight improvements in some areas, and that of 17-year-olds has, for the most part, declined, even in the basics. The success of the younger students suggests, again, that the focus on basic math and reading skills in the elementary years is paying off. Likewise, the stabilization of 13-year-olds' performance suggests that intervention begun in the early grades and maintained throughout the elementary years also has begun to pay off. On the other hand, the poor performance of the 17-year-olds, even in the basics, suggests that it is much harder to reverse years of poor academic performance than it is to address the problem in the primary grades, before it gets out of hand.

NAEP findings also indicate that student group performance has been, for the most part, consistent across subject areas. The only exception to this are male/female performance differences, which seem to vary according to learning area assessed. Otherwise, inner-city, poor, black

youth and youth living in the Southeast have made significant gains relative to more advantaged youth in other parts of the country in virtually all subject areas evaluated. The consistent growth demonstrated by blacks, the urban-disadvantaged, and youth from the Southeast suggests that the increased attention paid to these population groups over the past decade has had a positive impact on student achievement.

Panels of experts asked to comment on the implications of the NAEP findings suggest that the following aspects of the school program be strengthened or modified:

- Continue emphasis on systematic, objective-based basic skills instruction while expanding efforts toward the improvement of higher order skills instruction, i.e., problem solving and critical thinking strategies. Basic skills instruction should be emphasized in the primary grades; problem solving, evaluative, and critical thought processes should be the focus at the secondary level.
- Keep science and social studies as part of the basic curriculum. These disciplines should be incorporated into the "back to basics" curriculum rather than forfeited at its expense. In a technological society, science in particular should be considered as basic as any other subject area.
- Pay particular attention to the academic needs of selected student populations: encourage females and minorities to take advanced mathematics and science courses, reinforce the improvement noted for inner-city, disadvantaged youth by supporting educational programs designed to meet their needs.
- Do not allow the "back to basics" focus to be cause to ignore the academic needs of brighter students, as declines in some cognitive areas for high achievers and for youth in advantaged-urban areas suggest may be the case.
- Re-examine the match between curricular objectives and high school students' educational needs for both basic and higher order skills instruction. The NAEP results indicate that when today's elementary students enter secondary school, they will have mastered the basics—the high schools will need to be ready to meet these students' academic needs.

IV. THE USES OF NAEP

EDUCATIONAL PRACTICE

National Educational Organizations

NAEP findings are being used both by organizations whose members are part of a specific constituency (e.g., teachers, school boards, school administrators) and those concerned with a specific subject area.

For organizations concerned with general education issues, the most common reported use is in keeping constituents abreast of the status of education and trends in educational achievement through newsletters, journals and magazines. Only rarely, however, do these organizations use NAEP data as the basis for developing organizational policy positions.

Curriculum organizations, on the other hand, have made extensive use of NAEP data both in reporting to constituents and in the development of positions and recommendations for action concerning curricula thrusts. This finding is supported by Sebring and Boruch[23] in their examination of the National Council of Teachers of Mathematics (NCTM) and the National Council of Teachers of English (NCTE). Both organizations work with ECS in developing objectives and content items for surveys, in interpreting results and in disseminating NAEP findings to their members.

State Use

NAEP concepts, methods, and materials are used for planning and evaluating state assessment programs, for comparing state assessments and for developing educational objectives. More than 40 states have adopted state assessment programs, and, for most, NAEP has played a contributory role.

According to a U.S. General Accounting Office (GAO) survey [24], all 50 state educational agencies had reviewed NAEP materials and were familiar with NAEP capabilities and services, and 37 states had enough familiarity with NAEP to determine its usefulness for their assessment programs. Of this latter group, 20 stated that they considered NAEP very useful to their programs, and 15 considered NAEP data of moderate or limited use.

A more recent NAEP utilization study[25] reported that 12 states have closely replicated the NAEP asssessment model for their state assessment programs, and 14 have modified the model to

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[23] Sebring, P.A., and Boruch, R.F., On the Uses of the National Assessment of Educational Progress, Report No A-137-4, Evanston, IL: Division of Methodology and Evaluation Research, Psychology Department, Northwestern University, 1982.

[24] Comptroller General of the United States, The National Assessment of Educational Progress: Its Results Need to Be Made More Useful, (Washington, D.C.: United States Government Printing Office, 1976).

[25] Ward, B., and others, Major Informational Needs of the National Assessment Audiences and Ways to Enhance the Assessment Utility in Meeting those Needs, (Denver CO: Educational Commission of the States, Unpublished Paper No. 12-IP-51, 1980), pp. 80-88.

meet their needs more closely. Another 12 states have received some form of technical assistance from ECS on NAEP methods and procedures but have not made use of specific NAEP items.

Sebring and Boruch[26] studied the utilization patterns of seven states that use NAEP resources. They found, generally, that the states also involved educators in selecting objectives and items for state assessments. In most states surveyed, assessment reports are distributed to local schools, and workshops are conducted to share findings and recommendations. Two of the seven states had established policies for allowing local schools to conduct their own assessments using NAEP and state items.

Other state uses of NAEP data to support or improve practice are tied to the nature of specific programs and cover a wide range of possibilities. National and regional data from the NAEP assessment serve as measures for comparing state data. The data are also used in consideration of curricular changes or modifications, and in support of existing programs.[27]

Local Use

The 1976 GAO study, which surveyed 710 local school districts, indicated that less than half (46%) of the districts were familiar with NAEP, its products, and its services; only 2% were familiar enough to determine NAEP's usefulness to their assessment programs.

More encouraging indications of local use come from ECS records, which show that in 1981 local schools made 2,300 requests for NAEP material.[28] Though an indirect measure of actual use, the requests indicate an increased awareness of NAEP as a resource for local agencies.

ECS is unaware of any direct use of NAEP data by local education agencies (LEA's). LEA use of NAEP has been cited by others, but these references are either dated or unspecific.

OTHER USES

During 1981, colleges and universities made 986 requests for NAEP reports and technical materials for use in teacher training.[29] Federal agency officials have used NAEP resources to gauge or improve educational practice through such efforts as commissioning special purpose assessments and activities aimed at broad information dissemination. Specific agencies and their uses of NAEP resources are as follows.

- Department of Defense Dependent Schools (DODDS, 1979-80). DODDS awarded a contract to the Education Commission of the States to assess writing skills of 9-, 13-, and 17-year-old DODDS students using NAEP items and procedures. The findings will be compared with national NAEP results. DODDS is also conducting an assessment of reading/literature concurrent with NAEP's assessment in this area and will compare its results with NAEP's.

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[26] Sebring and Boruch, op. cit.

[27] Ward, op. cit., Sebring and Boruch, op. cit.

[28] Sebring and Boruch, op. cit.

[29] Ibid.

- National Institute of Education (1977-1979). NIE awarded ECS a grant to conduct a Women in Mathematics Survey. The survey of 1,300 13-year-olds and 1,600 high school seniors was added to the existing annual NAEP assessment using standardized tests instead of NAEP items.
- Office of Consumer Education (1979). OCE contracted with ECS to report the findings of a consumer skills assessment (1977-78). Four seminars were conducted by ECS for representatives of consumer agencies, education agencies, federal agencies, and congressional staff. The findings were widely disseminated through the media and by consumer groups.
- Basic Skills Group (1976-77). DHEW provided special reading and mathematics assessment materials that became part of a test file to provide current information about assessment instruments to educational researchers.
- National Science Foundation (1976). Four university faculty members spent 10 weeks conducting special analyses of existing NAEP data. They explored relationships between background variables and achievement and examined methods of constructing an index of basic skills.
- Institute for Responsive Education (IRE, 1976). ECS data collection and research assistance was provided to IRE in completing an NIE-funded project, "A Study of Citizen Participation in Education Decision Making."
- National Right-to-Read Program (1974-75). ECS conducted a Mini-Assessment of Functional Literacy under agreement with the National Right-to-Read Program. The survey, which used NAEP reading items and procedures and was conducted concurrently with the regular NAEP assessment of 17-year-olds, involved approximatley 5,200 in-school 17-year-olds.
- Office of Career Education (1974). This office awarded a grant to develop a brochure summarizing the findings of the NAEP career development assessment and to develop a resource assessment kit for those involved in evaluating career development programs.
- National Center for Education Statistics (ongoing). On request, NAEP provides material for the annual The Condition of Education, and the Digest of Educational Statistics published by NCES.

Educational Policymakers

At the national level, the Congressional Research Service has used NAEP reports to respond to information requests for educational data from congressional committees. The most direct policy-related use of NAEP data however has been in congressional testimony.

Of particular note was the use of NAEP data during hearings on the Omnibus Budget Reconciliation Act in the spring of 1981. In support of Title I, trends in reading and writing achievement over three assessment cycles showed improvements for disadvantaged youth. Other instances of the use of NAEP data include:

- Testimony by T.H. Bell, Secretary of Education, to the Senate Appropriations Committee, cited NAEP data as support for Department budget (1981).

- Testimony by Dr. Roy H. Forbes, then ECS' NAEP Director, to the Subcommittee on Elementary, Secondary, and Vocational Education of the House Committee on Education and Labor, for "Oversight Hearing on Reading and Writing Achievement" (1981).
- Testimony by Dr. Roy H. Forbes, then ECS' NAEP Director, to the Subcommittee on Elementary, Secondary, and Vocational Education of the House Committee on Education and Labor, for "Oversight Hearing on Mathematics Achievement" (1979).
- Testimony by Dr. Jack G. Schmidt, NAEP Director of the Field Services Department, to the Subcommittee on Elementary, Secondary, and Vocational Education of the House Committee on Education and Labor, on state testing programs and the Quie proposal for allocation of Title I funds (1977).
- Testimony by Dr. Roy H. Forbes, then ECS' NAEP Director, to the Subcommittee on Education, Arts, and Humanities of the Senate Committee on Human Resources, on the need for a national test and/or national standards (1977).
- Testimony by Dr. Roy H. Forbes, then ECS' NAEP Director, to the Subcommittee on Elementary, Secondary, and Vocational Education of the House Committee on Education and Labor, on "Basic Skills Proficiency" (1977).
- Testimony by Dr. Roy H. Forbes, then ECS' NAEP Director, to the Subcommittee on Elementary, Secondary, and Vocational Education of the House Committee on Education and Labor, on oversight hearing on reading programs (presentation of functional literacy data collected for the Right-to-Read Program) (1975).
- Testimony by Dr. J. Stanley Ahmann, then ECS' NAEP Staff Director, to the Special Subcommittee on the National Science Foundation of the Senate Committee on Labor and Public Welfare, on "Decline of Science Knowledge in America's Schools" (1975).
- Testimony by Dr. J. Stanley Ahmann, then ECS' NAEP Staff Director, to the House Committee on Education and Labor, on "Quie Proposal for Title I Funds Allocation" (state-by-state testing to allocate Title I funds based on performance) (1974).
- Testimony by Dr. J. Stanley Ahmann, then ECS' NAEP Staff Director, to the House Committee on Education and Labor, on the "National Assessment Program" (1972).

At the state level, evidence from case studies indicates growing use of NAEP in legislative matters.[30] Reportedly, three states—Connecticut, North Dakota, and Minnesota—have used state assessment data as general background information on the status of achievement. Additionally, legislators from Texas, Maine, and North Dakota cited the use of NAEP findings in making decisions about competency testing legislation.

Overall, Federal agency officials view NAEP as useful for public reports and speeches and in providing a context for considering educational policy issues. Federal agencies have also used ECS to conduct special-purpose NAEP assessments as background for policy decisions.

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[30]Ibid.

- The Department of Labor (1980) contracted with ECS to conduct a study of out-of-school 17-year-olds, using NAEP reading/literature, career development, and basic life skills items. Some items specific to DOL informational needs were also included.[31]
- The Food and Drug Administration (1977) contracted with ECS to administer several FDA-developed questions in a NAEP young adult assessment. Items included questions on the ability of young adults to interpret information on drug and food labels.

Educational Research

Only since 1979 has NAEP made concerted efforts to ensure the accessibility of its data for general research purposes. Prior to that time, public use data tapes were not consistently available nor were they in a format readily useful to researchers. Recent efforts by the National Science Foundation and the National Institute of Education to develop more intelligible data tapes have greatly improved their utility and enhanced the potential for secondary analysis.[32]

Research using the tapes has focused on assessment methodology, hypothesis or model testing, descriptive studies, and policy studies. NIE and ECS have also sponsored a grants competition which promotes the use of NAEP data tapes for research purposes.[33]

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[31] Ward, op. cit.

[32] All ECS reports are available from the ERIC Document Reproduction Service, P.O. Box 190, Arlington, Virginia 22210 / (703) 841-1212. Public-Use Data tapes are available from the National Archives and Records Service (NARS) and from ECS. ECS is committed to producing 100% of all NAEP data in Public Use Data tape form by October, 1983.

[33] Education Commission of the States, Exploring National Assessment Data through Secondary Analysis, Report AY-SA-50, (Denver, CO: Education Commission of the States, 1982).

V. REACTIONS TO NAEP

PRIOR EVALUATIONS

In its 13 years of operation, NAEP has been the subject of five major evaluations, each of which cited the importance of NAEP in measuring national academic achievement. Each evaluation also offered suggestions for improving and enhancing the usefulness of NAEP.

Greenbaum, Garet, and Solomon Evaluation

The first evaluation of NAEP was conducted in 1972-73 by William Greenbaum, Michael Garet, and Ellen Solomon.[34]

The authors made several recommendations, some of which are now dated, concerning the future of NAEP.

- The Assessment should never be viewed as a national "school accountability" system.
- The Assessment should not be regarded as a "short-term research or decision-making tool".
- The Assessment should help states and local districts develop their own assessments.
- The Assessment materials should be noticeably improved. Instead of criterion-referencing individual exercises, perhaps NAEP could criterion-reference several objectives.
- If the former were done, the Assessment could develop a three- or four-level definition of functional literacy and then prepare tests to measure progress toward the various levels.
- Consideration should be given to widening the Assessment cycle to 10 years if it is found that after the second cycle minor changes are being measured.

NCES Evaluations

In 1974 and again in 1975, the National Center for Education Statistics commissioned evaluations of the significance and effectiveness of NAEP.

The 1974 evaluation concluded that changes were necessary in a number of NAEP's "current priorities and practices," but that the "survival and strengthening of the project is vital to the continuing effort to improve the quality of education of American school children." It also concluded that NAEP's potential had not been realized because it was not widely used as a benchmark at any level of educational decision-making or by any category of potential user. Among the recommendations stemming from the evaluation were the following:

- NAEP data should be designed to be of value to state and local systems.
- NAEP should "encourage, support, and help" state and local education systems develop their own assessments.

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[34]Greenbaum, op. cit.

- New variables that would help explain performance results should be explored.
- Short-term assessments should be conducted to be responsive to particular national needs.
- Assessment staff should become more effective in the interpretation of NAEP results.
- More research activity should be undertaken for measurement of change and exercise development.[35]

The findings of the 1975 review were generally consistent with those of the previous year's evaluation. Overall, the 1975 evaluation team found ECS to have a "carefully planned, well managed enterprise with a highly competent staff, which is almost fanatically dedicated to quality."[36] The major suggestion for improvement was that ECS leadership and staff establish new contacts with outside groups to determine current policy concerns and data needs.

GAO Evaluations

The fourth evaluation of NAEP was conducted in 1976 by the General Accounting Office. The GAO report stated that NAEP clearly had contributed to American education but that its results were of "limited usefulness" to educational decision makers. The GAO suggested that NAEP, to make its results more useful, take the following steps:

- Identify informational and other needs of decisionmakers;
- Determine the feasibility and cost effectiveness of alternative approaches for collecting and reporting educational assessment data and for providing other services to satisfy those needs;
- Decide on the assessment approach to be used;
- Establish continuing dialogues to determine data needs and how the National Assessment could best meet those needs;
- Interpret its own data, and rely less on others for interpretation;
- Establish performance standards;
- Improve its communication and cooperation with the National Institute of Education and other educational researchers to facilitate research, interpretation, and application of project results;
- Improve dissemination of project results.[37]

Wirtz and Lapointe Evaluation

The most recent review of NAEP was conducted by Willard Wirtz and Archie Lapointe with funding from the Carnegie Corporation, the Ford Foundation, and the Spencer Foundation. Wirtz and Lapointe, in an evaluation report issued this year, stated the essential features of NAEP should be maintained—that they are critically important to the effective implementation of a new educa-

[35]Provus, M., and others, An Evaluation of the National Assessment of Educational Progress by the Site Team of the National Center for Educational Statistics, Washington, D.C.: Evaluation Research Center, NCES, 1974.

[36]Johnson, M., and others, An Evaluation of the National Assessment of Educational Progress, Washington, D.C.: NCES, 1975.

[37]Comptroller General of the United States, op. cit.

tional standards policy. However, they also stated that, if the question was whether or not the Assessment should be continued in its present form or slightly modified, they would suggest that it not be continued. Wirtz and Lapointe suggested that the following improvements were needed to increase NAEP's effectiveness:

- The NAEP should perform two assessments per year.
- The student time involved should be increased from one hour to two hours.
- The project should allow for easy access to data by states and localities to make nationwide comparisons.
- NAEP should be administered on a grade-level basis and should include, as it originally did, out-of-school 17-year-olds and a young adult group.
- NAEP's objectives should be focused on what should be taught, and NAEP should strive for establishing higher educational standards.
- NAEP should report its results on an aggregated-item basis and issue interpretive statements.
- NAEP's internal research and development capacity should be expanded.
- NAEP's valuable service to state and local assessment and standard-setting agencies should be recognized, continued, and strengthened.
- NAEP should develop procedures to facilitate the analysis of its data through secondary research and analysis that will illuminate the implications of these data.
- NAEP should establish a program of specific assessments to illuminate particular educational policy issues.
- NAEP should establish an Educational Assessment Council to synthesize data, improve public understanding of NAEP data, and recommend changes in the process and structure of the educational measurement system.[38]

The authors also recommended that NAEP, to implement the suggestions put forth, have an annual budget of about $7.5 million. NIE currently funds NAEP at about $3.9 million per year.

CURRENT REACTIONS

NIE sent letters to a sample of education researchers, major education organizations and associations, all chief state school officers and state assessment directors in order to gather public comment on NAEP, as well as suggestions for its improvement.

The responses from all the groups were highly favorable and supportive of the Assessment. The overwhelming majority of state agencies that responded cited the use of NAEP data and/or methodology in their own state assessments. These agencies reported that they used or adapted NAEP sampling procedures, used NAEP test items, compared statewide findings with NAEP findings, or used NAEP methodologies in developing test items.

However, state respondents also felt that for NAEP to be more responsive to their needs, the following changes should be made:

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[38]Wirtz, W., and Lapointe, A., Measuring the Quality of Education: A Report on Assessing Educational Progress, Washington, D.C.: Wirtz and Lapointe, 1982.

- Testing should be administered by grade level, since most state and local asssessments test at specific grades. This would increase the number of state and local concurrent assessments.
- Additional background information on the characteristics of sample schools and students should be collected.
- Efforts should be strengthened to make data and funds available for secondary analysis.
- NAEP objectives should be refined for the basic skills subject area assessments.
- A computerized item-banking system should be established and maintained by NAEP to aid states in their test item development activities, thus saving states and localities millions of dollars.
- Priority should be placed on investigating ways for integrating NAEP with high technology.
- NAEP should pilot test and use assessment instruments in other areas of communications, such as listening, speaking and viewing.

Education organizations and associations reported that they use NAEP data extensively in their newsletters, journals, and conferences. They share a common opinion with the states—assessments should be made at grade levels. In addition, organizations and associations suggested the following:

- Some adult populations should be tested, including a sample of high school drop-outs and high school graduates who did not attend college.
- Results should be grouped by states whose per pupil expenses are comparable.
- NAEP's capability to comprehensively assess all learning areas should be increased, and additional subject areas for assessment should be considered, such as computer literacy, economic understanding, science education, oral language, and listening skills.
- NAEP should increase dissemination of its findings through education journals, the popular press, professional meetings, and education organizations and associations.
- After each assessment NAEP should prepare and widely disseminate summaries or highlight sheets in a nontechnical style.

The researchers queried felt that researchers would make more use of NAEP if:

- There were "miniature profiles" of each assessment.
- Data were scaled down to the sub-skill area, not just content area.
- NAEP data files were available by subject.
- Subjects were assessed each year in all content areas to provide for more detailed and quicker trend analysis.
- The 17-year-old out-of-school population were included.
- Interpretive studies in all assessment areas were prepared.
- Data were gathered about teacher judgments on whether the information contained in various items had been taught to students at various ages.

VI. SUMMARY AND RECOMMENDATIONS

Evaluation findings and reactions from educational leaders support the continuation of NAEP. These evaluations and leaders cite NAEP as an invaluable tool, assisting the states in conducting their own assessments and providing "barometer-like" achievement data on the educational progress of American youth. This barometer-like function is viewed as the catalyst for national debates concerning the condition of American education.

However, in the presence of these positive reactions to NAEP, there are criticisms of its purpose and scope. These criticisms do not call for the abolition of NAEP or the elimination of its present role, but rather for an expanded role for NAEP.

The major concerns of NAEP critics are twofold. First, while respecting NAEP's census-like reporting role, NAEP critics contend that NAEP data do not lend themselves to analyses designed to explain why and where various trends are occurring and where improvements in the educational system might be made. Second, while respecting ECS' effective reporting and newsletter dissemination activities, its critics do not believe NAEP data have been made available to research analysts and policymakers in a usable format.

Both of these concerns can be subsumed under the conclusion that the utility of NAEP as a tool for improving our understanding of the condition of education must be enhanced. In considering changes in the purpose and conduct of NAEP, one must be sensitive to state and local control of education and take care not to create Federal standards, curriculums, and tests. An appropriate set of guidelines to employ in determining the function of a federally sponsored educational assessment was developed by Denis Doyle in his paper "Paying the Piper: Federal Funds and State Interests, A Proposal for Governing NAEP," a paper commissioned by NIE. Doyle states that:

> The question about NAEP governance, then, is what is the public interest? The public interest in measuring national educational progress is first, informational; second, diagnostic; and third, prescriptive. The first function is properly the province of the federal government, the second the province of the federal government and the states, the third the province of the states.
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> Information. The federal government has the financial resources and national perspective necessary to support a national assessment but has neither the responsibility nor capacity to control or mandate education operations at the local level.
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> Diagnosis. Diagnostic activity, in both medicine and education, is the necessary precursor to treatment. Analytically and operationally, however, it is distinct from prescription. It is a necessary but not sufficient precondition for intervention. Because of its scale and scope, much education diagnostic work can properly be performed by or supported by the federal government: it is the logical and appropriate follow up to data gathering. Indeed, it is the essence of research and development, an activity which is itself well suited to federal support. Like national data collection, much R&D is national in scope and implication, but is not reasonably supported at the state or local level. As well, federal R&D can and should be collaborative rather than interventionist. Research that "works" does not require federal edicts or mandates to implement; local providers have the necessary incentives to utilize R&D findings, so long as they have access to information.

Prescription. Once information is available, and competently analyzed, intervention is possible. In the American system of education, the appropriate intervenor is that level of government responsible for providing the service, and their agents; local school boards.[39]

The recommendations that follow were designed with this paradigm in mind. Only recommendations for improving the informational and diagnostic roles of NAEP are presented. It is assumed that when presented with relevant assessment findings, state and local jurisdictions will decide, if and how to use them for prescriptive purposes.

The recommendations are organized into three categories: (1) changes in the public law to improve NAEP's utility; (2) changes that will improve NIE's monitoring procedures; and (3) changes to improve NAEP's administration.

Changes in the Public Law to Improve NAEP's Utility

It is recommended that the purpose of NAEP, as stated in P.L. 95-561, be changed as follows:

- Add a subsection 405(k) (1) (E) to read, "provide for data analyses designed to explain why and where various trends occur and for data analyses of educational performance as it relates to various educational policies and to student, teacher, and school characteristics."
- Add to subsection (k) (3), after "...utilization of the National Assessment," the following, "increasing the interpretive and evaluative analyses, and for reviewing and approving all deliverable products to the government."

Although NAEP provides useful information about trends in American education, it does not provide insight into why the trends are the way they are and how improvement can be brought about. As Ellis Page states in a prepared paper for NIE on rethinking the role of NAEP, one should "look for all explanatory causes of important student behaviors. Include influences of the family, church, neighborhood, and other major influences outside the school."[40] This general belief that the interpretive role of NAEP should be strengthened is shared by the authors of several of the evaluations cited earlier and the authors of NIE-commissioned papers on NAEP,[41] as well as by a number of the surveyed state education personnel and education organizations and associations.

While the experts differ on how the interpretive ability of NAEP should be enhanced—some would modify NAEP's design, some would collect different kinds of information, some would change the nature of the project's dissemination, and so on—they all agree that such enhancement should occur.

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[39]Doyle, D., Paying the Piper: Federal Funds and State Interests: Proposal For Governing NAEP, Paper Prepared for NIE, 1982, pp. 8-9.

[40]Page, E., Rethinking Principles of National Assessment: Towards a More Useful and Higher Quality Knowledge Base for Education, Paper prepared for NIE, 1982, p. 29.

[41]Boruch, R., The Governance of the National Assessment of Educational Progress: A Brief Review and Some Options, Paper prepared for NIE, 1982. Weber, G., The National Assessment of Educational Progress, Paper prepared for NIE, 1982. Turlington, R., Modifying NAEP to Meet State Needs: The Florida Perspective, Paper prepared for NIE, 1982. Haney, W., What Could Be Done Differently With NAEP?, Paper prepared for NIE, 1982.

Given the current legislation that guides NAEP, NIE cannot define and direct such changes. NIE believes that the Congress should require such changes through modifying the purpose of NAEP as described above.

NAEP has been and continues to be useful. It is now time, however, for NAEP to expand, to become more interpretive, to become more useful. As Turlington concludes:

> In viewing the National Assessment of Educational Progress, one cannot help concluding that the program has been worthwhile. Much has been learned about student achievement and the relationship of important variables, such as race, to achievement. The design of the Assessment probably was appropriate for the late 1960's, but that design, in some ways, has outlived its usefulness.
>
> The original NAEP design stressed the accumulation of data which would not be offensive to anyone. Aggregations of data at the state level were avoided. No attempt was made to establish competency criteria and define minimum acceptable skills. Emphasis was placed on sophisticated sampling strategies and the extrapolation of every bit of minute information which one might extract from an achievement survey. Little or no effort was made to interpret the results. In retrospect, it is easy to see why NAEP has been accused of having little impact. If one avoids doing anything controversial, impact is almost assured to be minimal.[42]

Modify the Membership of NAEP's Governing Body

It is recommended that the membership of the Assessment Policy Committee be modified to include two additional members who are experts in statistical policy and/or educational research planning and policy.

The present membership of the APC is appropriately weighted in favor of state and local interests. The members (state legislators, school superintendents, school board members, classroom teachers, etc.) are particularly sensitive to the problems experienced by school systems. They are not, however, well equipped to determine how best to formulate studies or analyze data or interpret alternative policies or necessarily, improve the condition of education.

As Boruch states:

> The categories [of membership] listed in the law for instance virtually guarantee that very few, if any, will be knowledgeable about statistics, statistical management, statistical policy or educational research planning and policy. It can be regarded as distressing and absurd that despite 80 years of development in survey sampling, 50 years of technical developments in experimentation, and 200 years in policy if we use the Census Bureau as a standard, the categories specified in the APC ignore them. This is frightening when we recognize that some $4 million per yer is spent on a basically statistical enterprise that must be independent and related to others.[43]

After surveying APC members, Boruch concluded that many of them were unaware of much of the major work in educational policy, statistical policy, and secondary analysis. Given these limitations, NIE believes that the presence of policy-sensitive and trained individuals on the APC

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[42]Turlington, op. cit., p. 16.

[43]Boruch, op. cit., p. 15-16.

would maximize NAEP's potential to be more interpretive in nature and more responsive to the information needs of state, local, and Federal agencies. Therefore it is recommended that the following changes be made in the law:

- In 405(k) (2) (A) (ii), change "twelve" to "fourteen."
- In 405(k) (2) (b) add an item (viii) to read: "two experts in statistical policy and/or educational research planning and policy."

Changes That Will Improve NIE's Monitoring Procedures

At the present time the statutory focus of NAEP is upon the collection and reporting of student performance data. Consequently, although NAEP currently provides useful information about trends in American education it will be more useful to educators and policymakers if it provided greater analytical insight into how those trends have developed and what they mean. We recommend that Congress consider changes to Section 405(k) that will make this emphasis upon analysis possible. Specifically, we recommend that the NAEP grantee:

- Submit an analysis plan 6 months in advance of any given assessment. This plan will describe the contemporary policy issues that the assessment will address and will provide an assurance that the kinds of data being collected will contribute to the analysis of those issues. Additionally, the plan will identify those audiences (e.g. legislative, administrative) toward whom these analyses are directed. The grantee will be required to show evidence that these audiences have had an opportunity to comment on the plan.
- Have a policy analyst on its staff who serves as direct staff support to the APC. This individual will serve as the APC's representative on the grantee's staff for the purpose of improving communications and assuring that the APC's agenda is implemented as designed.
- Begin a transition from reporting NAEP findings on an age basis (i.e., what the average 9-year-old knows) to reporting findings on a grade-level basis (i.e., what the average third grader knows). this recommendation is based on requests from numerous state departments of education. The need to make this change is best exemplified by the following excerpt from a letter received from a chief state school officer:

> I would ask the NAEP program to recognize that state assessment programs just cannot afford to implement the age testing model. It's just not administratively feasible for us, since we do not hire special test administrators and we like to minimize disruption of our testing program on local school districts.
>
> Consequently, if NAEP would test all children in a grade, this problem would be removed. Thus, it is our feeling that a change to grade testing and reporting would help Connecticut and our colleagues in other states who might wish to implement state assessment programs using a comparable NAEP framework. We would want NAEP to publish statistics related to the proportion of children at the various ages within the grade. In addition, the NAEP age testing program, by its design negates any value for curriculum at a grade level. There is no such thing as a curriculum for a "13-year-old". Thus, NAEP has had little

impact on moving instruction in the content disciplines.[44]

Changes to Improve NAEP's Administration

Following are two additional changes that NIE would like the Congress to consider. All are designed to assist in NIE's administration of NAEP.

- We recommend that the required collection cycle for NAEP be changed to "at least every six years" so as to permit every other year collection of NAEP; we cannot now collect three different subject areas within a five year period as required by law.

- We recommend that the Director of NIE should specifically serve as a non-voting member of the APC. This change avoids potential conflict of interest situations such as having a Federal official vote on budget proposals to be submitted to the Federal Government.

To provide the context of these proposed changes we reproduce the legislation here with the proposed changes underlined and the proposed deletions in brackets.

NATIONAL ASSESSMENT OF EDUCATIONAL PROGRESS LEGISLATION

Section 405(k)(1) In addition to other responsibilities of the Institute under this section, the Institute shall carry out, by grant to or cooperative agreement (subject to the provisions of the Federal Grant and Cooperative Agreement Act of 1977) with a nonprofit education organization, a National Assessment of Educational Progress which shall have as a primary purpose the assessment of the performance of children and young adults in the basic skills of reading, mathematics, and communication. Such a National Asssessment shall—

(A) collect and report at least once every [five] six years data assessing the performance of students at various age or grade levels in each of the areas of reading, writing, and mathematics;
(B) report periodically data on changes in knowledge and skills of such students over a period of time;
(C) conduct special assessments of other educational areas, as the need for additional national information arises; [and]
(D) provide technical assistance to State educational agencies and to local educational agencies on the use of National Assessment objectives, primarily pertaining to the basic skills of reading, mathematics, and communication, and on making comparisons of such assessments with the national profile and change data developed by the National Assessment; and

[44]Letter to NIE from Mark R. Shedd, State Superintendent of Schools, Connecticut (dated July 9, 1982).

(E) provide for data analyses designed to explain why and where various trends occur and for data analyses of educational performance as it relates to various educational policies and to student, teacher, and school characteristics.

(2)(A) The educational organization through which the Institute carries out the National Assessment shall be responsible for overall management of the National Assessment. Such organization shall delegate authority to design and supervise the conduct of the National Assessment to an Assessment Policy Committee established by such organization. The Assessment Policy Committee shall be composed of—

(i) five members appointed by the education organization of whom two members shall be representatives of business and industry and three members shall be representatives of the general public and

(ii) [twelve] fourteen members appointed by the education organization from the categories of membership specified in subparagraph (B).

(B) Members of the Assessment Policy Committee appointed in accordance with division (ii) of subparagraph (A) shall be—

(i) one chief State school officer;
(ii) two State legislators;
(iii) two school district superintendents;
(iv) one chairman of a State board of education;
(v) one chairman of a local school board;
(vi) one Governor of a State;
(vii) four classroom teachers; and
(viii) two experts in statistical and/or educational research planning and policy.

(C) The Director of the Institute shall serve as a non-voting ex officio member of the Assessment Policy Committee. The Director shall also appoint a member of the National Council on Education Research to serve as a nonvoting member of the Assessement Policy Committee.

(D) Members appointed in accordance with divisions (i) and (ii) of subparagraph (A) shall be appointed for terms of three years, except that (i) in the case of members appointed for fiscal year 1979, one third of the membership shall be appointed for terms of one year and one third shall be appointed for terms of two years each, and (ii) appointments to fill vacancies shall be for such terms as remain unexpired. No member shall be appointed to serve more than two consecutive terms.

(3) The Assessment Policy Committee established by paragraph (2) shall be responsible for the design of the National Assessment including the selection of the learning areas to be assessed, the development and selection of goal statements and assessment items, the assessment methodology, the form and content of the reporting and dissemination of assessment results, studies to evaluate and improve the form and utilization of the National Assessment, increasing the interpretive and evaluative analyses, and for reviewing and approving all deliverable products to the government.

(4) Each learning area assessment shall have goal statements devised through a national consensus approach, providing for active participation of teachers, curriculum specialists, subject matter specialists, local school administrators, parents, and concerned members of the general public. All items selected for use in the assessment shall be reviewed to exclude items which might

reflect racial, sex, cultural, or regional bias.

(5) Participation in the National Assessment by State and local educational agencies selected as part of a sample of such agencies shall be voluntary.

(6) The Director of the Institute shall provide for a review of the National Assessment at least once every three years. This review shall provide an opportunity for public comment on the conduct and usefulness of National Assessment and shall result in a report to the Congress and to the Nation on the findings and recommendations, if any, stemming from the review.

(7) There are authorized to be appropriated $10,500,000 for each fiscal year ending prior to October 1, 1983, to carry out the provisions of this subsection.

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